REMARKS

Claims 1-14 are all the claims pending in the application. Claims 1-3 are allowed. Claim 9 has been amended. Support for the amendment to claim 9 may be found in the specification as originally filed, for example, at page 116, lines 6-19.

I. The Rejections Based on Goodall in view of Allen

Claims 9-13 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Goodall (U.S. patent no. 6,136,499) in view of Allen (U.S. patent no. 6,165,678).

Claims 4-8 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Goodall in view of Allen and Aoai.

Applicants respectfully submit that the present invention is not anticipated by or obvious over Goodall in view of Allen (and Aoai) and request that the Examiner reconsider and withdraw this rejection in view of the following remarks.

Further to the Remarks and the 132 Declaration filed May 9, 2001 (the executed copy of the 132 Declaration was filed May 30, 2001), Applicants prepared additional comparative data to show the unexpected improvements achieved by the claimed invention over the disclosures of the cited art in a second 132 Declaration (the executed copy was filed December 21, 2001).

The Examiner considered the second 132 Declaration, but in the "note" accompanying the Advisory Actions the Examiner stated that the Declaration does

not place in the application in condition of allowance because the Declaration does not provide evidence of unexpected results for the following reasons:

> The compositions in Table 1, which are directed to claims 4-8, do not have the same resin and thus the compositions can not be compared. The inventive examples showing an unexpected decrease in defects "are obtained by the combination of claimed resin and the claimed solvent." Claims 4-8 do not read on a solvent and no solvent is included in Table 1. If Applicant meant to say surface active agent, rather than solvent, the results are still not unexpected because the purpose of including a surface active agent in the composition is to aid in the coating of the composition, thus improvements in the properties of the composition are expected; and
>
> The compositions in Table 2, which are directed to claims 9-13 have different resins. The solvent mixture S1/S3 is within the scope of the present invention, however, this is not the case. Solvent S1, as defined on page 145 of the specification is propylene glycol monomethyl ether acetate. Claim 9 does not read on this solvent but [reads on] propylene glycol monomethyl ether. Additionally, the results from the solvent mixture S2/S3 can not be used because solvent S2 is propylene glycol monomethyl ether propionate which also is not claimed in claim 9. Additionally, the solvents in Table 2 of the Declaration are not commensurate in scope with the claimed solvents in claim 9 which read on propylene glycol monoalkyl ether wherein the alkyl group is not defined.

Applicants' Comments on the Examiner's position.

As to the Examiner's statement that the compositions in Table 1, which are directed to claims 4-8, do not have the same resin and thus the compositions can not be compared, Applicants respectfully submit that the resin in Example a is the same as that in Example a'. Likewise for Examples b and b' and c and c', respectively. Thus, said samples are comparable. Further, the resins of Table 1 are representative of the claimed invention and the closest cited art.

The resins of Synthesis Examples 56 and 57 in Goodall are within the scope of Resin (B) in claims 4-8 of the present invention. The resin in Synthesis Examples 56 and 57 have basically same structure, that is, they are t-butyl ester copolymers of maleic acid anhydride and norbornene carboxylic acid. The maleic acid anhydride corresponds to a repeating unit represented by formula (Ib) and the t-butyl ester of norbornene carboxylic acid corresponds to a repeating unit represented by formula (II) (i.e., a repeating unit in which in formula (IIA) at least one of R_{13}, R_{14}, R_{15} and R_{16} is t-butyl ester of carboxylic acid and n is 1). Thus, the resins of Table 1 are representative of the claimed invention and the closest cited art.

As to the Examiner's comments concerning the use of the term "solvents" at the top of page 4 of the Declaration, Applicants agree with the Examiner's analysis that use of the term "solvent" is a minor error, since the Tables clearly indicate that surface active agents (i.e., surfactants) are the element present.

As to the data concerning the surfactants, the Examiner's position is that surfactants would aid in the coating of the composition and, therefore, the results are expected.

Applicants respectfully submit that the comparative data is evidence of unexpected superiority and that the results are not expected in view of the cited art. Certainly, there are some publications disclosing that coating characteristics (i.e.,

coatability) can be improved by adding a surfactant. However, other characteristics (including the properties described in Applicants' specification) are not known to be affected by surfactants.

For example, if the coatability is changed, the performance of the resist between the central portion and the circumferential portion of a wafer in-plane may be different. However, this phenomenon is not related to the effect of the present invention. That is, the effect of the present invention is unexpected over the knowledge in the art relating to coating characteristics. One of ordinary skill in the art would not expect that the properties of "number of development defects," "defocus latitude depended on line pitch," and "particle (initial value)" to be properties that would directly follow or relate to coating characteristics. Thus, the comparative data is evidence of unexpected superiority and that the results are not expected in view of the cited art.

Applicants respectfully traverse the Examiner's position that the solvents used in Table 2 are not representative of those of claim 9. Solvent S3 is ethyl lactate. Solvent S1 is propylene glycol monomethyl ether acetate. Claim 9 recites "a mixed solvent containing at least one selected from the group consisting of butyl acetate and propylene glycol monoalkyl ether carboxylate and at least one selected from the group consisting of ethyl lactate and propylene glycol monoalkyl ether."

Thus, claim 9 recites the following combinations:

(1) Butyl acetate and ethyl lactate;

(2) Butyl acetate and propylene glycol monoalkyl ether;

(3) Propylene glycol monoalkyl ether carboxylate and ethyl lactate; and

(4) Propylene glycol monoalkyl ether carboxylate and propylene glycol monoalkyl ether.

Thus, the Examiner's statement that the solvent combination of S1/S3 (propylene glycol monomethyl ether acetate (a propylene glycol monoalkyl ether carboxylate–see Applicants' page 116) and ethyl lactate is not within the scope of claim 9 appears to be in error. See combination # (3) above. The solvent combination S1/S3 is within the scope of the solvent combination as claimed.

The Examiner also states that the solvents in Table 2 of the Declaration are not commensurate in scope with the claimed solvents in claim 9, "which read on propylene glycol monoalkyl ether wherein the alkyl group is not defined." Of course, a propylene glycol monoalkyl ether wherein the alkyl group is not defined does not literally exist and Applicants use an actual compound in the experiments of the Declaration. Applicants respectfully submit that the comparative data is commensurate in scope with the claimed invention.

In view of the above, the Examiner is requested to reconsider Applicants' claimed invention and the comparative data of record. The effects of the claimed invention are unexpected over the disclosures of Goodall, which does not disclose the surfactant or the mixed solvent of the claimed invention, and Allen, which does not disclose the resin of the claimed invention.

For the above reasons, it is respectfully submitted that the subject matter of claims 9-13 is neither taught by nor made obvious from the disclosures of Goodall in view of Allen and that the subject matter of claims 4-8 is neither taught by nor made obvious from the disclosures of Goodall in view of Allen and Aoai and it is requested that the rejections under 35 U.S.C. §103(a) be reconsidered and withdrawn.

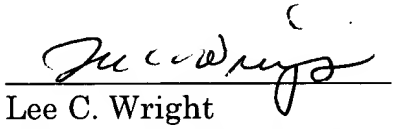
II. Conclusion

In view of the above, Applicants respectfully submit that their claimed invention is allowable and ask that the rejections under 35 U.S.C. §103 be reconsidered and withdrawn. Applicants respectfully submit that this case is in condition for allowance and allowance is respectfully solicited.

If any points remain at issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the local exchange number listed below.

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

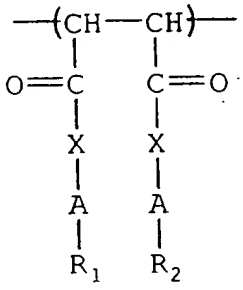
Claim 9 is amended as follows:

9 (twice amended). A positive photoresist composition for far ultraviolet exposure, comprising:

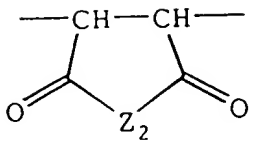
(A) a compound capable of generating an acid by the irradiation of an actinic ray or radiation,

(B) a polymer having at least either a repeating unit represented by the following formula (Ia) or a repeating unit represented by the following formula (Ib) and a repeating unit represented by the following formula (II) and having a group capable of decomposing by the action of an acid, and

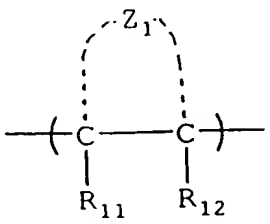
(E) a mixed solvent containing at least one selected from the group consisting of butyl acetate and propylene glycol monoalkyl ether carboxylate and at least one selected from the group consisting of ethyl lactate and propylene glycol monoalkyl ether:



(Ia)



(Ib)

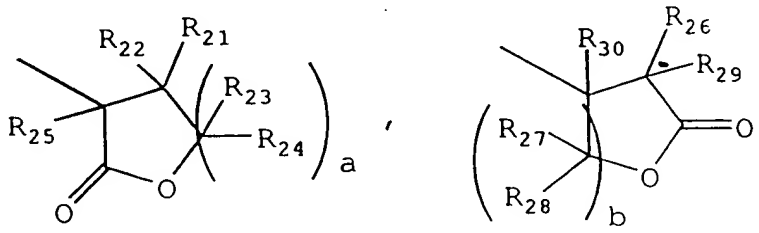


(II)

wherein

in formula (Ia), R_1 and R_2 each independently represents hydrogen atom, a cyano group, a hydroxyl group, -COOH, -$COOR_5$, -CO-NH-R_6, -CO-NH-SO_2-R_6 (wherein R_5 represents an alkyl group which may have a substituent, a cyclic hydrocarbon group which may have a substituent or a -Y group shown below, and R_6 represents an alkyl group which may have a substituent or a cyclic hydrocarbon group which may have a substituent), an alkyl group which may be substituted, an alkoxy group which may be substituted, a cyclic hydrocarbon group which may be substituted or a -Y group shown below, X represents oxygen atom, sulfur atom, -NH-, -$NHSO_2$- or -$NHSO_2NH$-, and A represents a single bond or a divalent linking group:

-Y group:



(wherein R_{21} to R_{30} each independently represents hydrogen atom or an alkyl group which may have a substituent, and a and b each represents 1 or 2);

in formula (Ib) , Z_2 represents -O- or -N(R_3)- (wherein R_3 represents hydrogen atom, a hydroxyl group or -OSO_2-R_4 (wherein R_4 represents an alkyl group, a haloalkyl group, a cycloalkyl group or a camphor residue)); and

in formula (II), R_{11} and R_{12} each independently represents hydrogen atom, a cyano group, a halogen atom or an alkyl group which may have a substituent, and Z_1 represents an atomic group necessary for forming an alicyclic structure which contains the two bonded carbon atoms and may have a substituent;

wherein said propylene glycol monoalkyl ether carboxylate is at least one selected from the group consisting of propylene glycol monomethyl ether acetate, propylene glycol monomethyl ether propionate, propylene glycol monoethyl ether acetate, propylene glycol monoethyl ether propionate, propylene glycol monopropyl ether acetate and propylene glycol monopropyl ether propionate; and said propylene glycol monoalkyl ether is at least one selected from the group consisting of propylene glycol monoethyl ether, propylene glycol monoethyl ether and propylene glycol monopropyl ether.